

## CLAIMS

1. A photomultiplier comprising:

an outer casing whose interior is maintained in a vacuum state;

5 a photocathode accommodated in said outer casing, said photocathode emitting electrons into the interior of said outer casing in accordance with light taken in through said outer casing;

an electron multiplier section accommodated in said outer casing, said electron multiplier tube having groove portions each extending along a propagation direction of the electrons; and

10 an anode accommodated in said outer casing, said anode taking out, from among electrons resulting from cascade multiplication at said electron multiplier section, reached electrons as signals,

wherein one or more protrusions, each having a secondary electron emitting surface formed on the surface thereof to perform cascade multiplication of the photoelectrons from said photocathode, are provided on the respective surfaces of each pair of wall portions that define the groove portions.

20 2. A photomultiplier according to claim 1, wherein said protrusions provided on the surface of one wall portion of said each pair of wall portions and said protrusions provided on the surface of the other wall portion of said each pair of wall portions are alternately positioned along the propagation direction of the electrons.

25 3. A photomultiplier according to claim 1 or 2, wherein a height B of each protrusion provided on the surface of the one wall portion among said each pair of wall portions satisfies the following relationship with respect to an interval A between said each pair of wall

portions:

$$B \geq A/2.$$

4. A photomultiplier comprising:

an outer casing whose interior is maintained in a vacuum state;

5 a photocathode accommodated in said outer casing, said photocathode emitting electrons into the interior of said outer casing in accordance with light taken in through said outer casing;

10 an electron multiplier section accommodated in said outer casing, said electron multiplier tube having through holes each extending along a propagation direction of the electrons; and

an anode accommodated in said outer casing, said anode taking out, from among electrons resulting from cascade multiplication at said electron multiplier section, reached electrons as signals,

15 wherein one or more protrusions, each having a secondary electron emitting surface formed on the surface thereof to perform cascade multiplication of the photoelectrons from said photocathode, are provided on surfaces of wall portions that define the through holes.

20 5. A photomultiplier according to claim 4, wherein said protrusions, provided on the surfaces of the wall portions that define the through holes, are positioned at mutually shifted positions as observed in the propagation direction of the electrons.